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METHOD FOR REPAIRING DISK MILLING CUTTERS

V. N. Afonin, Cen Lab of Mintransmash

Despite emphasis on economical consumption of metals and instruments, expensive disk milling cutters are often written off as spoilage at Soviet plants after breaking or cracking.

The author has conducted some work on the repair of disk milling cutters made of high-speed steel using Slavyanov's method of electric arc welding. The result is a simple, rapid, worthwhile, and inexpensive method for repairing the

In preparation for welding, the edges of each part of the broken cutter are beveled to a depth of one millimeter.

Austenitic chrome-nickel electrodes of 4 and 2.5 mm diameter were chosen for the work. Accordingly, the welding current used was 140 and 60-70 a. Either ac or dc may be used for welding with these electrodes.

Two types of welding were tried: with preheating and without preheating. The first cutters were welded without preheating and good results were obtained in two cases. The cutters had no cracks or deformations. However the next three cutters to be welded without preheating developed cracks, whereupon it was deemed necessary to preheat to 450-500°.

The broken cutters are welded on α flat plate. The broken parts are fitted snugly together. The cutter is then tack-welded in three or four places on both sides -- at the ends and in the middle. This may be done without preheating. The tack welds should not be more than 5 mm long. After tack-welding, the cutter is placed on an electric stove, covered with an asbestos sheet, and heated.

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After heating, the cutter is left on the stove and welded. An 8- to 10-mm seam is welded from one end of a break, the cutter is turned over, and a seam of the same length is applied at the other end. These steps are repeated until the weld is completed on both sides. After this, the cutter is covered with the asbestos sheet, the current is cut off from the stove, and the cutter and stove are allowed to cool. The seam is ground off flush and the cutter is returned to service.

In welding cracks, abrasives are used to separate the sides to a depth of one millimeter on both sides of the cutter. The ends of the crack are then tack-welded without preheating. Thereafter, the process is the same as that for a broken cutter.

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